Course Syllabus

Course Name: Honors Physics II
Course Code: Vp260

Course Pre-requisites
Honors Physics I; Applied Calculus III or Honors Mathematics III

Textbooks
Hugh D. YOUNG, Roger A. FREEDMAN, *University Physics* (13th edition)
Ruth CHABAY, Bruce SHERWOOD, *Matter & Interactions vol. II* (3rd edition, available in ER Room)
selected topics: David J. GRIFFITHS, *Introduction to Electrodynamics* (3rd edition, available in SJTU library)

Instructor
Mateusz KRZYZOSIAK (m.krzyzosiak@sjtu.edu.cn)
Office hours: Tuesday 18.00-20.15, Wednesday (odd weeks) 14.00-15.30, Thursday (even weeks) 13.00-13.45; and by appointment
Office: Room 211 (JI building), Phone: 021-34206765 ext. 2111

Teaching Assistants
LI Xiahan (email: lixiahan@sjtu.edu.cn; recitation class: Tue 18.20-20.00; office hour: Tue 20.00-22.00)
LI Chunchao (email: lcc951111@sjtu.edu.cn; recitation class: Mon 12.10-13.50; office hour: Mon 20.00-22.00)
YAO Yue (email: patrickyao@sjtu.edu.cn; recitation class: Thu 18.20-20.00; office hour: Thu 20.00-22.00)
Please check Canvas for recitation classes and office hours location!

Grading Policy

Coursework (25%)
Midterm Exam I (25%)
Midterm Exam II (25%)
Final Exam (25%)

For this course, “B+” is expected to be the median grade.

Academic Integrity

Lectures

Students are encouraged to read the relevant chapters in the textbook ahead of the lecture. Students are required to read and review the relevant chapters after the lecture. Lecture notes will be available on the Sakai system. Students are expected to attend lectures.

Recitation Classes

Weekly recitation sessions in smaller groups will be led by teaching assistants. Recitation classes will focus mostly on problem solving and discussion. Students are expected to attend and actively participate in the recitation sessions.

Homework

Homework will be assigned in the form of problem sets to be solved by each student individually or projects to be completed in groups. Problem sets will have a due date assigned, by which the homework has to be handed in for grading. Please plan your time well, late homework will not be accepted.

Exams

There will be two midterm exams and one final exam as listed in the class schedule. All exams are closed book. Use of a non-electronic English-Chinese dictionary will be allowed during the exams.

Honor Code

Oral discussion of homework problems with other students is allowed and encouraged on the level of general ideas, not specific solutions. It is not allowed to show any written work to other students. If any references to academic textbooks or research journals are made, they should be properly identified with the bibliographical data. No references to Wikipedia entries are allowed.

Course description and detailed teaching schedule

Honors Physics II (Vp260) is the second part of the two-semester honors course in general physics and focuses on electromagnetism. The aim of this course is to introduce the fundamental laws of electromagnetism and illustrate them in applications. Conceptual links across different areas of physics will be emphasized in order to develop interdisciplinary intuition allowing to approach problems in various fields of science and engineering in a systematic way. A list of topics is given in the teaching schedule.

Tentative Teaching Schedule

week	date	topic	textbook(s) sections
1	Sep 12–16	Electric Charge and Electric Field	Y21, G2.1-2.2
2	Sep 19–23	Gauss's Law	Y22, G2.2
3	Sep 26–30	Electric Potential. Method of Images.	Y23, G2.3**-2.5, G3.2
4	Oct 5–9	Holiday break	
5	Oct 10–14	Capacitance and Dielectrics. Electric Field in Matter. Current, Resistance, and Electromotive Force.	Y24, G2.5, G4.1-4.2** Y25
6	Oct 17–21	Current, Resistance, and Electromotive Force. Direct-Current Circuits **First Midterm Exam**	Y25, Y26
7	Oct 24–28	Magnetic Field and Magnetic Forces	Y27, G5.1
8	Oct 31–Nov 4	Sources of Magnetic Field; Magnetic Field in Matter	Y28, G5.2-5.3, G6.1**, *
9	Nov 7–11	Electromagnetic Induction Maxwell's Equations	Y29*, G7.2-7.3**
10	Nov 14–18	Maxwell's Equations **Second Midterm Exam**	Y29*, G7.2-7.3
11	Nov 21–25	Inductance Alternating Current	Y30 Y31
12	Nov 28–Dec 2	Alternating Current Electromagnetic Waves	Y31 Y32
13	Dec 5–9	Light: Polarization, Reflection and Refraction; Elements of Wave Optics: Interference and Diffraction	Y33, Y35/36 (part)
14	Dec 12–16	Elements of Wave Optics: Interference and Diffraction **Final Exam**	Y35/36 (part)

* additional materials will be provided, ** selected topics